

CLIPPEDIMAGE= JP402237129A

PAT-NO: JP402237129A

DOCUMENT-IDENTIFIER: JP 02237129 A

TITLE: CONNECTION STRUCTURE OF SEMICONDUCTOR ELEMENT

PUBN-DATE: September 19, 1990

INVENTOR-INFORMATION:

NAME

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ASSIGNEE-INFORMATION:

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NIPPON STEEL CORP

OKI ELECTRIC IND CO LTD

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N/A

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APPL-NO: JP01058474

APPL-DATE: March 10, 1989

INT-CL (IPC): H01L021/60

US-CL-CURRENT: 29/827,257/737 ,257/747 ,257/748 ,257/750
,257/778
,438/FOR.343

ABSTRACT:

PURPOSE: To realize a stable electrical connection even against a repetitive strain by a method wherein, when a semiconductor element is connected to a substrate or the like, a superelastic body material is used for a connection part which is subjected to a thermal strain most.

CONSTITUTION: A superelastic body material piece 6 covered with a bonding metal

7 is inserted, as a bump material 8, between electrodes 4 of a semiconductor element 1 and a substrate 2; heat is applied; the bonding metal 7 is melted; a bonding operation is executed; an electrical connection is obtained. Thereby, a shearing strain which is caused by an irregularity in a height of a bump and by a difference in a coefficient of thermal expansion between the semiconductor element 1 and the substrate 2 is absorbed by a deformation within an elastic range of the superelastic body material piece 6; accordingly, it is possible to obtain a stable electrical connection.

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CLIPPEDIMAGE= JP409045691A

PAT-NO: JP409045691A

DOCUMENT-IDENTIFIER: JP 09045691 A

TITLE: SOLDER BUMP FOR CHIP COMPONENT AND ITS MANUFACTURE

PUBN-DATE: February 14, 1997

INVENTOR-INFORMATION:

NAME

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ASSIGNEE-INFORMATION:

NAME

OKI ELECTRIC IND CO LTD

COUNTRY

N/A

APPL-NO: JP07191641

APPL-DATE: July 27, 1995

INT-CL_(IPC): H01L021/321

ABSTRACT:

PROBLEM TO BE SOLVED: To provide a solder bump in which the contact area of a first bump with a second bump is made large and in which their exfoliation at the boundary face between both is prevented by a method wherein the second bump is formed in such a way that the surface of a large-diameter pillar-shaped part and the circumferential face and the surface of a small-diameter pillar-shaped part are covered with a solder material whose melting point is lower than that of a solder material for the first bump.

SOLUTION: A diffusion-preventing metal film 5 is formed on a carene film 4 formed on an electrode pad 2 while the carene film is used as an electrode for electrolytic plating. A first bump 10 which is formed in a prescribed height on the diffusion-preventing metal film 5 is composed of a cylindrical

large-diameter pillar-shaped part 10b and of a small-diameter pillar-shaped part 10a which is formed on the surface of the large-diameter pillar-shaped part 10b in a diameter which is smaller than that of the large-diameter pillar-shaped part 10b, and both pillar-shaped parts 10a, 10b are formed of the same solder material whose melting point is high. A second bump 11 which is formed in the same diameter as the large-diameter pillar-shaped part 10b so as to cover the surface of the large-diameter pillar-shaped part 10b at the first bump 10 and the circumferential face and the surface of the small-diameter pillar-shaped part 10a is formed of a solder material whose melting point is lower than that of the first bump 10.

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CLIPPEDIMAGE= JP358175839A

PAT-NO: JP358175839A

DOCUMENT-IDENTIFIER: JP 58175839 A

TITLE: SEMICONDUCTOR DEVICE

PUBN-DATE: October 15, 1983

INVENTOR-INFORMATION:

NAME

TAKEBE, TOMOKO

ASSIGNEE-INFORMATION:

NAME

AGENCY OF IND SCIENCE & TECHNOL

COUNTRY

N/A

APPL-NO: JP57057303

APPL-DATE: April 8, 1982

INT-CL (IPC): H01L021/60;H01L021/92

US-CL-CURRENT: 438/680,438/FOR.405

ABSTRACT:

PURPOSE: To facilitate bonding by using a metallic cylindrical projecting electrode as a projecting one for flip chip bonding and coating the surface of a chip with insulating resin in the same height as the projecting electrode.

CONSTITUTION: A source electrode 12, a gate electrode 13 and a drain electrode 14 are formed onto a semiconductor base body 11, and the cylindrical projecting electrodes 72~74 are formed through metal thick plating. The surface of the chip is coated with insulating resin 8, and solder materials 92~94 are placed. Accordingly, solder does not adhere on insulating resin 8, and the solder materials 92~94 can be set up only in the internal

space of the
cylindrical projecting electrodes 72∼74.

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CLIPPEDIMAGE= JP404017390A

PAT-NO: JP404017390A

DOCUMENT-IDENTIFIER: JP 04017390 A

TITLE: BONDING OF ELECTRONIC PARTS

PUBN-DATE: January 22, 1992

INVENTOR-INFORMATION:

NAME

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ASSIGNEE-INFORMATION:

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MATSUSHITA ELECTRIC IND CO LTD

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N/A

APPL-NO: JP02120224

APPL-DATE: May 10, 1990

INT-CL (IPC): H05K003/34;H05K003/36

US-CL-CURRENT: 29/840

ABSTRACT:

PURPOSE: To stick electrode parts to a board with good wettability while requiring no flux by forming an extremely thin anticorrosive metal film on the solder surface while heating and melting this solder to stick the electrode parts of electronic parts to a circuit pattern of the board.

CONSTITUTION: A circuit pattern 2 is formed on the surface of a board 1 of a copper foil, solder 3 is formed on this circuit pattern 2 and an anticorrosive metal film 4 of extremely thin gold and platinum is formed on the surface of this solder 3 by means of plating. The surfaces of the electrodes 6, 62 of the electronic parts 6 are coated with solder 7, and a metal film 8 is formed

on its surface by means of gold and platinum. The electronic parts 6 are loaded on this board 1, solder 3, 7 are heated and solder 3, 7 are melted, the films 4, 8 being extremely thin are minutely dissolved and melted into the inside of the molten solder 3, 7 to completely stick together solder 3 and solder 7.

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CLIPPEDIMAGE= JP405226544A

PAT-NO: JP405226544A

DOCUMENT-IDENTIFIER: JP 05226544 A

TITLE: SEMICONDUCTOR DEVICE

PUBN-DATE: September 3, 1993

INVENTOR-INFORMATION:

NAME

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WADA, TSUKUO

ASSIGNEE-INFORMATION:

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APPL-NO: JP04028616

APPL-DATE: February 15, 1992

INT-CL (IPC): H01L023/50;C23C002/08 ;C23C002/10

ABSTRACT:

PURPOSE: To provide high solder wettability of a solder to a terminal regardless of plating thickness.

CONSTITUTION: Terminals 3 are provided in projecting manner on a semiconductor device body 2 on which a semiconductor chip 1 is mounted. The surface of terminal 3 is plated with solder, and further, the surface of the plated solder is coated with an anticorrosive agent. So, even if a through hole exists in the plated solder, the anticorrosive agent prevents a terminal material from oxidized.

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